FIG.1

FIG.2

```
                    ┌─────────────┐
                    │    START    │
                    └─────────────┘
                           │
                           ▼
                    ┌─────────────────┐  SP1
                    │ INTERPRET PDL IN│
                    │ UNIT OF OBJECT  │
                    └─────────────────┘
                           │
                           ▼
                    ┌─────────────────┐  SP2
  GRAPHIC FORM      │  OBJECT TYPE IS │      PHOTOGRAPH
  ◄─────────────────┤  CHARACTER OR   ├──────────────────►
                    │  GRAPHIC FORM/  │
    SP3             │  PHOTOGRAPH?    │         SP5
                    └─────────────────┘
                SP4       CHARACTER
   ┌─────────────┐  ┌─────────────┐  ┌─────────────┐
   │  GENERATE   │  │  GENERATE   │  │   ADJUST    │
   │GRAPHIC FORM │  │  CHARACTER  │  │ PHOTOGRAPH  │
   └─────────────┘  └─────────────┘  └─────────────┘
```

- START
- **SP1** INTERPRET PDL IN UNIT OF OBJECT
- **SP2** OBJECT TYPE IS CHARACTER OR GRAPHIC FORM/ PHOTOGRAPH?
  - GRAPHIC FORM → **SP3** GENERATE GRAPHIC FORM
  - CHARACTER → **SP4** GENERATE CHARACTER
  - PHOTOGRAPH → **SP5** ADJUST PHOTOGRAPH
- **SP6** CONVERT TO INTERMEDIATE CODE
- **SP7** DOSE READING POSITION REACH END OF PAGE?
- **SP8** ACQUIRE BLACK OBJECT SET FROM INTERMEDIATE CODE
- **SP9** GENERATE BIT MAP DATA OF EACH COLOR MATERIAL BASED UPON INTERMEDIATE CODE
- **SP10** ADD C, M, Y TO BLACK OBJECT
- **SP11** OUTPUT IMAGE
- END

FIG.3

	GRAPHIC		TEXT		GRAPHIC		
	CIRCLE		'F'		TRIANGLE		
	C	30	C	0	C	50	
	M	50	M	0	M	0	
	Y	0	Y	0	Y	80	
	K	0	K	100	K	0	
	POINTER INDICATING NEXT OBJECT		POINTER INDICATING NEXT OBJECT		POINTER INDICATING NEXT OBJECT		

11   12   13   14   15

FIG.4A

C	30
M	50
Y	0
K	0

FIG.4B

C	0
M	0
Y	0
K	100

FIG.4C

C	50
M	0
Y	80
K	0

FIG.5C

FIG.5B
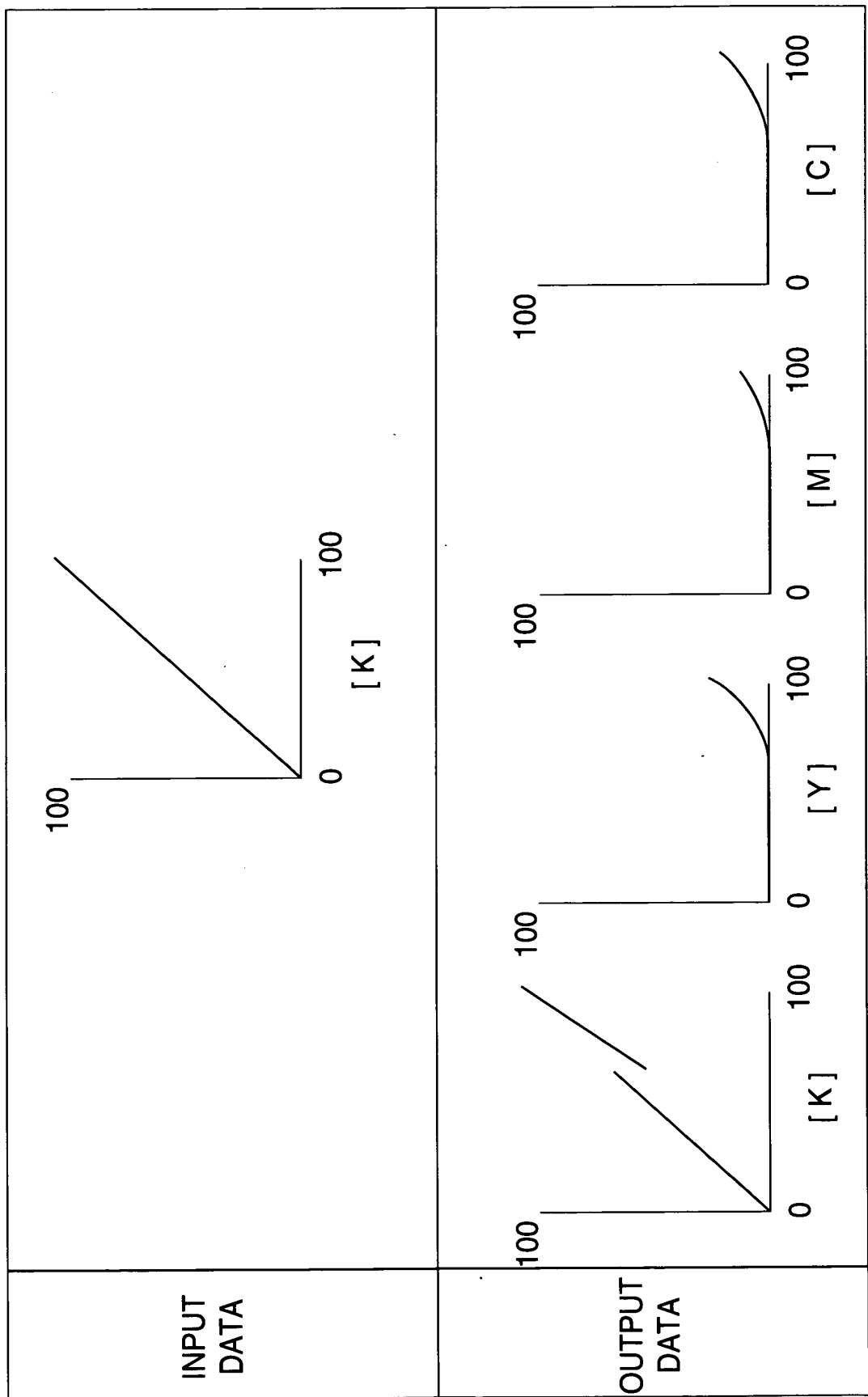
FIG.5A

FIG.6

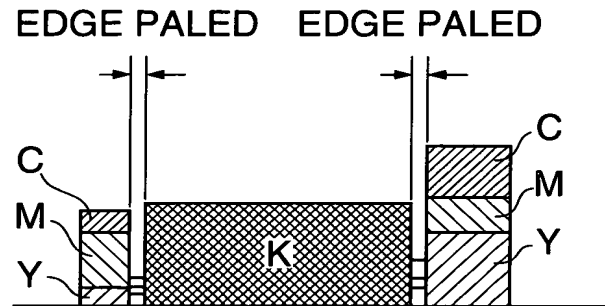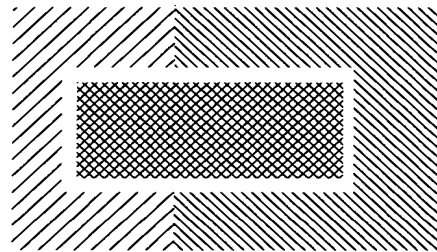EDGE PALED   EDGE PALED
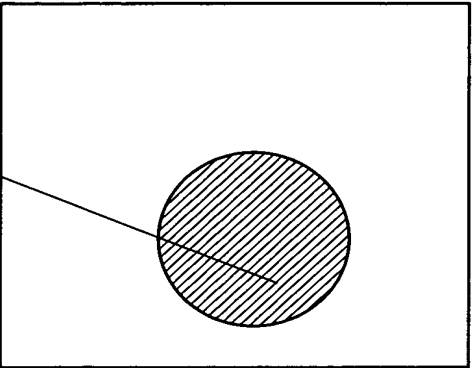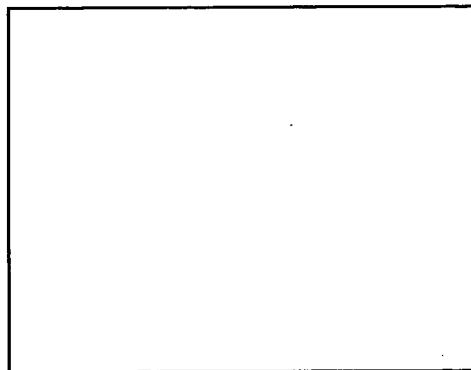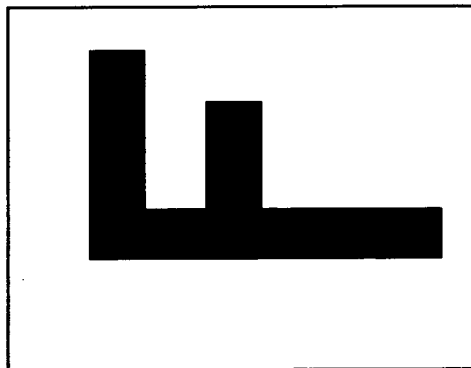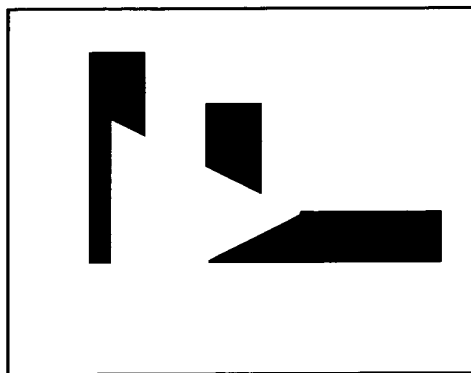
FIG.7A CROSS SECTION
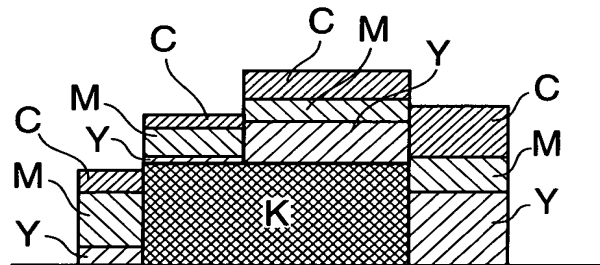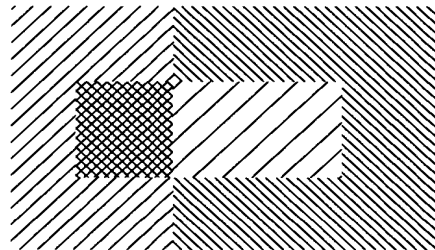
FIG.7B RESULT OF PRINTING
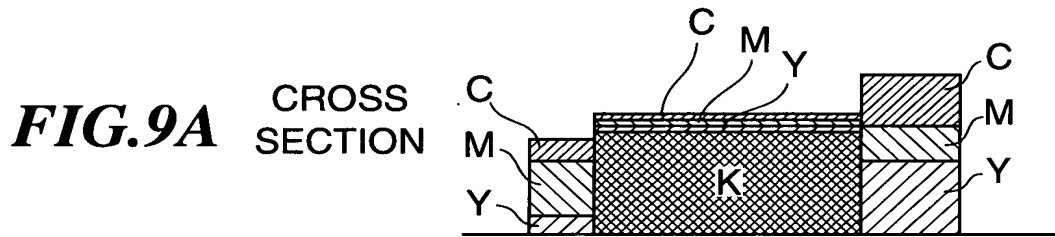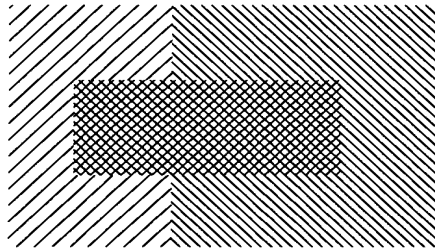
FIG.8A CROSS SECTION

FIG.8B RESULT OF PRINTING

FIG.9A CROSS SECTION

FIG.9B RESULT OF PRINTING

FIG.10

START

SP21 → $i \leftarrow 0$

SP22 → $i \leftarrow i + 1$

SP23 → $i > 4$?

NO → SP24

YES
(JUDGED CENTRAL PART)

SP24 → Pk(i) : 0? → NO

YES
(JUDGE CONTOUR)

SP25 → $Pc(x,y) \leftarrow$ PREDETERMINED VALUE

PROCESSING OF CONTOUR (C) — SP26

PROCESSING OF CONTOUR (M) — SP27

PROCESSING OF CONTOUR (Y) — SP28

ADJUST TOTAL QUANTITY OF COLOR MATERIAL — SP29

END

FIG.11

x →

Y ↓

	P(2)	
P(1)	P(x,y)	P(3)
	P(4)	

Pk(1) : Pk(x −1,y)
Pk(2) : Pk(x ,y−1)
Pk(3) : Pk(x +1,y)
Pk(4) : Pk(x ,y+1)

Pc(1) : Pc(x −1,y)
Pc(2) : Pc(x ,y−1)
Pc(3) : Pc(x +1,y)
Pc(4) : Pc(x ,y+1)

FIG.12

```
        ┌──────────────────┐
        │  PROCESSING OF   │
        │     CONTOUR      │
        └──────────────────┘
                 │
SP31    ┌──────────────────┐
        │   count ← 0      │
        └──────────────────┘
                 │
SP32    ┌──────────────────┐
        │      p ← 0       │
        └──────────────────┘
                 │
SP33    ┌──────────────────┐
        │      i ← 0       │
        └──────────────────┘
                 │
SP34    ┌──────────────────┐
        │    i ← i + 1     │
        └──────────────────┘
                 │
SP35    <      i > 4?      >──── NO ────────┐
                 │                          │
                YES                SP38     │
SP36                      <    Pc(i) : 0?   >──── YES ──┐
   YES  <    count : 0?   >       │                     │
         │       │               NO                     │
         │      NO        ┌──────────────────┐ SP39     │
SP37    ┌──────────────┐  │ count ← count + 1│          │
        │ Pc(x,y) ← P/ │  └──────────────────┘          │
        │     count    │          │                     │
        └──────────────┘          │                     │
         │       │       ┌──────────────────┐ SP40      │
        ┌──────────────┐ │   p ← p + Pc(i)  │           │
        │    RETURN    │ └──────────────────┘           │
        └──────────────┘          │                     │
                                  └─────────────────────┘
```
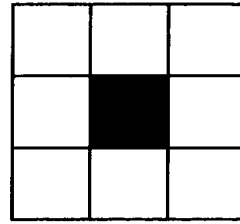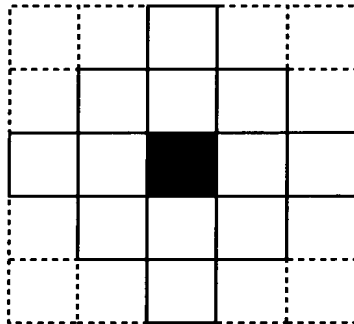
FIG.13

EXAMPLES OF NEAR PIXELS

NEAR 4 PIXELS
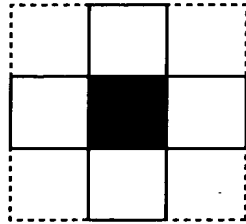
NEAR 8 PIXELS

NEAR 12 PIXELS

NEAR 20 PIXELS
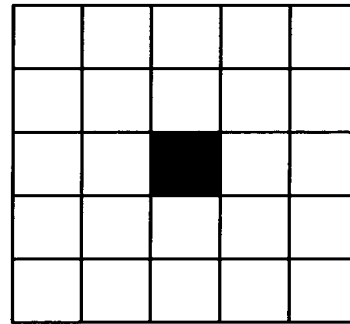
FIG.14

CASE THAT TOTAL AMOUNT OF COLOR MATERIAL COMES INTO QUESTION

	C	50
	M	30
	Y	30
	K	0

C	30		C	0		C	100
M	100		M	0		M	50
Y	100		Y	0		Y	80
K	0		K	100		K	0

	C	0
	M	0
	Y	0
	K	100

$Pc(x,y) + Pm(x,y) + Py(x,y) + Pk(x,y)$
$= (30 + 50 + 100) / 3$
$+ (100 + 30 + 50) / 3$
$+ (100 + 30 + 80) / 3$
$+ 100$
$= 60 + 60 + 70 + 100$
$= 290$

FIG.15A

METHOD OF CALCULATING
DENSITY OF TRAPPED PIXEL

```
           ┌─────────┐
           │         │
           │  P(2)   │
           │         │
┌─────────┬┴─────────┴┬─────────┐
│         │███████████│         │
│  P(1)   │███████████│  P(3)   │
│         │███████████│         │
└─────────┼─┬───────┬─┼─────────┘
           │         │
           │  P(4)   │
           │         │
           └─────────┘
```
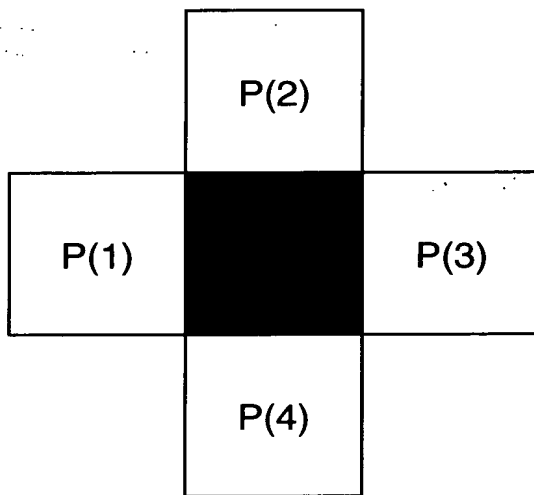
FIG.15B

METHOD OF CALCULATING
DENSITY OF TRAPPED PIXEL

```
              ┌─────────┐
              │ C   50  │
              │ M    0  │
              │ Y   30  │
              │ K    0  │
┌─────────┬───┴─────────┴───┬─────────┐
│ C   70  │█████████████████│ C    0  │
│ M    0  │█████████████████│ M    0  │
│ Y    0  │█████████████████│ Y    0  │
│ K    0  │█████████████████│ K  100  │
└─────────┼───┬─────────┬───┼─────────┘
              │ C    0  │
              │ M    0  │
              │ Y    0  │
              │ K  100  │
              └─────────┘
```
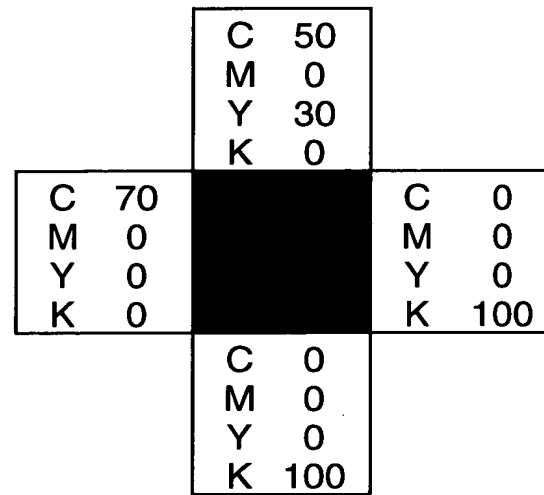
$$P(x,y) = (pc(1) + Pc(2)) / 2$$

FIG.16A BIT MAP DATA

FIG.16B CROSS SECTION
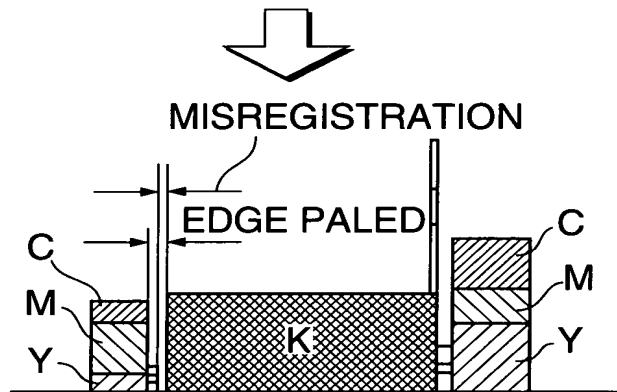
MISREGISTRATION

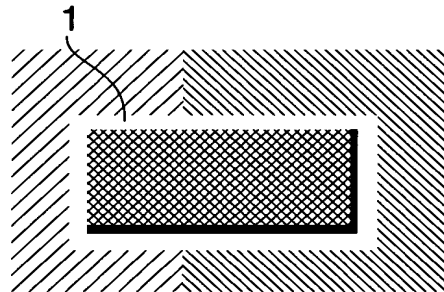EDGE PALED
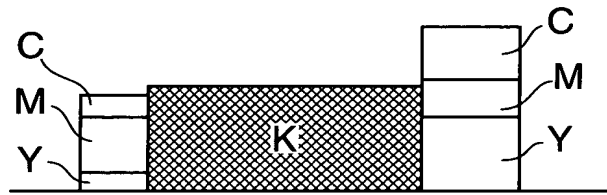
FIG.16C RESULT OF PRINTING
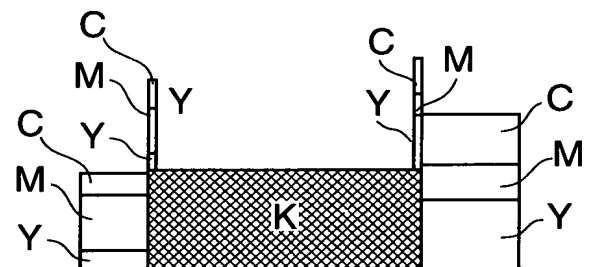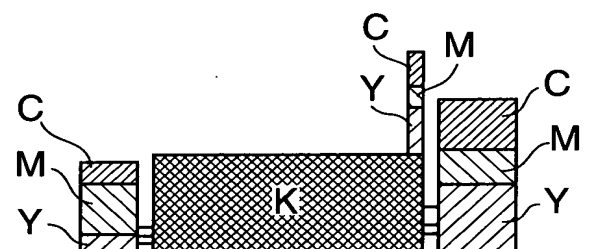
FIG.17A BIT MAP DATA
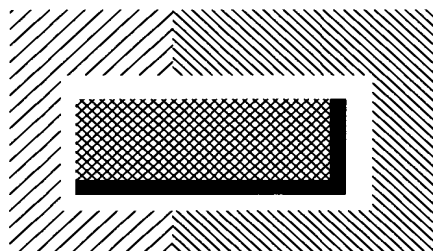

FIG.17B CROSS SECTION
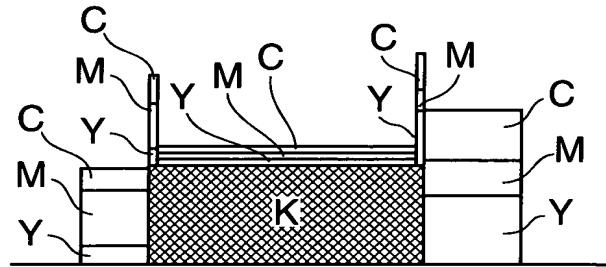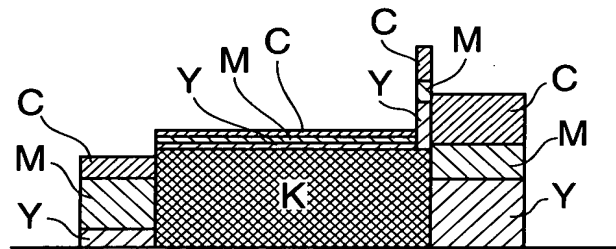

FIG.17C RESULT OF PRINTING

FIG.18A BIT MAP DATA

FIG.18B CROSS SECTION

FIG.18C RESULT OF PRINTING